

Appl. No. 10/605,656
Amdt. dated March 14, 2005
Reply to Office action of January 21, 2005

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1 (original): A microinjector comprising:

5 a chamber for containing fluid;
 an orifice in fluid communication with the chamber, the orifice disposed above the chamber;
 an actuator disposed proximately adjacent the orifice and external to the chamber for ejecting fluid from the chamber;
10 a metal plate disposed above the chamber; and
 a conduction channel for connecting the metal plate to ground.

2 (original): The microinjector of claim 1, wherein the actuator comprises a first actuating component and a second actuating component for sequentially generating a first bubble and a second bubble respectively.
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3 (original): The microinjector of claim 2, wherein the first actuating component has a cross sectional area smaller than that of the second actuating component.

20 4 (original): The microinjector of claim 1 further comprising a manifold between a fluid tank and the chamber for passing fluid from the fluid tank to the chamber.

25 5 (original): The microinjector of claim 1 further comprising a driving circuit electrically connected to the actuator for controlling the actuator, an end of the driving circuit connected to the actuator via a metal connector.

6 (original): The microinjector of claim 5, wherein the metal connector is made of a metal selected from a group consisting of aluminum, gold, copper, tungsten, and alloys of

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Al-Si-Cu.

7 (original): The microinjector of claim 1 further comprising a metal oxide semiconductor field effect transistor (MOSFET) electrically connected to the actuator via a metal connector.
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8 (original): The microinjector of claim 1, wherein the conduction channel is made of a metal selected from a group consisting of gold and nickel.

10 9 (original): The microinjector of claim 5, wherein the driving circuit comprises MOSFETs, bipolar transistors, JFET transistors, or diodes.

10 (new): The microinjector of claim 1, wherein the metal plate is made of a metal selected from a group consisting of gold and nickel.
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11 (new): The microinjector of claim 1 wherein the conduction channel extends through a passivation opening for connecting the metal plate to ground.

12 (new): The microinjector of claim 1 further comprising a metal layer disposed between the chamber and the metal plate.
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13 (new): The microinjector of claim 12 wherein the metal layer and the metal plate are both connected to ground.

25 14 (new): A method for reducing parasitic capacitance formed in a microinjector structure, comprising the steps of:
providing the microinjector, comprising:
a chamber for containing fluid;
an orifice in fluid communication with the chamber, the orifice disposed above
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the chamber;

an actuator disposed proximately adjacent the orifice and external to the chamber for ejecting fluid from the chamber; and

a metal plate disposed above the chamber; and

5 forming a conduction channel for connecting the metal plate to ground.

15 (new): The method of claim 14 wherein the conduction channel extends through a passivation opening for connecting the metal plate to ground.

10 16 (new): The method of claim 14 further comprising forming a metal layer between the chamber and the metal plate.

17 (new): The method of claim 16 wherein the metal layer and the metal plate are both connected to ground.

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18 (new): A method of providing shielding protection for a microinjector structure, comprising the steps of:

providing the microinjector, comprising:

a chamber for containing fluid;

20 an orifice in fluid communication with the chamber, the orifice disposed above the chamber;

an actuator disposed proximately adjacent the orifice and external to the chamber for ejecting fluid from the chamber; and

a metal plate disposed above the chamber; and

25 forming a conduction channel for connecting the metal plate to ground.

19 (new): The method of claim 18 wherein the conduction channel extends through a passivation opening for connecting the metal plate to ground.

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20 (new): The method of claim 18 further comprising forming a metal layer between the chamber and the metal plate.

21 (new): The method of claim 20 wherein the metal layer and the metal plate are both
5 connected to ground.